Students' Test Anxiety in Science at Secondary Level in Private Schools for Boys and Girls in Danyore, District Gilgit

Shahzad Ahmad[*]
Sadia Jamil[**]
Saba Fatima[***]

Abstract

Anxiety is a common human experience, although its intensity varies between individuals. It is generally described as an emotional state involving the anticipation of potential difficulties or unpleasant situations in the future. As a psychological condition, anxiety can manifest itself through physical, emotional, and social symptoms. A certain level of anxiety often influences how tasks are performed. In the academic context, students' performance in different subjects can be influenced by their level of test anxiety, making it essential to examine this factor. The present study aimed to explore the level of test anxiety among secondary school science students in Danyore area of Gilgit. The target population included the 921 tenth-grade science learners enrolled in local institutions, while the sample included 269 students from six private schools, chosen through convenience sampling due to time constraints.

To measure test anxiety, the researcher applied the Test Anxiety Inventory (TAI), created by Spielberger (1980) and later used by Stefan Peter and Philip Zabek in similar contexts. Students' anxiety levels were assessed using mean scores of individual items. Inferential statistics like t-test was used to compare the mean science test anxiety on gender basis. Effect size using Cohen's d to determine the practical significance of differences was used. Results indicated that most students expressed a neutral stance regarding science test anxiety, with only a small proportion demonstrating a negative orientation. Interestingly, none of the participants reported positive perceptions of test anxiety. The gender analysis further showed that male and female students had similar levels of test anxiety.

Keywords: Anxiety; Test Anxiety Inventory (TAI); Science; Secondary education; Gilgit; Pakistan.

[*]   Assistant Professor, Federal College of Education, H-9, Islamabad. E-mail: mianshahzadali17@gmail.com
[**]   Research Associate, Federal College of Education, H-9, Islamabad. E-mail: sadiajamilfce@gmail.com
[***]   Research Assistant, Federal College of Education, H-9, Islamabad. E-mail: saba.fati09@gmail.com

Introduction

Education is universally acknowledged as a vital driver of development and societal advancement. It plays a central role in improving the quality of life and ensuring the overall welfare of nations. Beyond its economic and social impact, education serves as a vehicle for transmitting values, traditions, knowledge, practices, and cultural experiences from one generation to the next (Aleed, 2016; Peleg, 2009).

Across all levels of schooling, examinations are widely regarded as a primary means of assessing students' academic performance and guiding educational decision-making. Learners are evaluated in diverse ways depending on their developmental stage and abilities, which contributes to their growth as confident and independent individuals. In many contexts, examinations continue to be the preferred tool for judging students' accomplishments, even though test outcomes do not fully capture the breadth of learners' capabilities (Zollar & Ben-Chaim, 1990).

Testing is an integral element of the educational process yet test anxiety has become a widespread concern in contemporary society. In an era where academic scores increasingly determine access to competitive programs and high-demand professions, the impact of test anxiety is more pronounced than ever. Since it often reduces performance and hinders achievement, educators, psychologists, and counselors continue to emphasize the need for effective strategies to mitigate its negative consequences (Putwain, 2008). While anxiety can sometimes serve as a natural coping response that motivates individuals to handle challenging circumstances, excessive anxiety disrupts daily functioning and has adverse effects on overall well-being (Hartley & Phelps, 2012).

Scholars have defined anxiety as an unpleasant, vague sensation that typically arises when an individual anticipates potential harm or danger (Asadullapoor, Fati, & Gharaee, 2010). Severe anxiety can damage both mental and physical health, with further repercussions on one's personal, social, professional, and academic life (Zahrakar, 2008). Among the various forms of anxiety, test anxiety has emerged as a major area of scholarly inquiry. This condition often surfaces during examinations, characterized by multiple symptoms that span emotional, cognitive, behavioral, and physical dimensions. Physical signs may include palpitations, sweating, muscle tension, dizziness, nausea, sleep disturbances, and other stress-related reactions (Bourne, 2005).

Researchers generally identify two primary components of test anxiety: a cognitive aspect, commonly referred to as worry, and an affective or emotional aspect. The cognitive element directly interferes with exam performance, whereas the emotional response, though closely

linked, does not always have a direct effect on outcomes (Cassady, 2005). Students may feel distressed by the perception of being constantly observed and judged, which can undermine confidence and ultimately impair performance (Cheraghian, Fereydouni, BarazPardejani, & Bavarsad, 2008; Moadeli & Ghazanfari, 2005).

Studies further reveal that anxiety-related disorders are common, particularly in the United States, with test anxiety recognized as one of the most prevalent types (Amiri-Majd & Shahmoradi, 2008). This form of anxiety often obstructs students' ability to demonstrate knowledge accurately during assessments, resulting in lower performance and reduced academic achievement (Markman, Balik, Bercovitz, & Ehrenfeld, 2010). Against this background, the current research was designed to examine test anxiety among secondary school science students enrolled in private institutions in Danyore, Gilgit.

Research Objectives

The present study was designed with the following objectives:

1. To determine the level of test anxiety among secondary school students in science.
2. To examine whether students' levels of test anxiety in science differ according to gender.

1.2 Research Questions

Based on these objectives, the study addressed the following research questions:

i. What is the overall level of test anxiety among secondary school students in science?
ii. How do male students at the secondary level experience test anxiety in science?
iii. How do female students at the secondary level experience test anxiety in science?
iv. In what ways do male and female students differ in their levels of test anxiety in science?
v. Is the difference in test anxiety between male and female students in science practically significant?

Research Hypothesis

To further guide the inquiry, the following null hypothesis was formulated:

H$_{01}$: There is no statistically significant difference between the levels of test anxiety in science among male and female secondary school students.

H$_{02}$: There is no practically significant difference in test anxiety in science between male and female secondary school students.

Literature Review

Anxiety is widely recognized as a global phenomenon that negatively affects students' academic performance. Although it is a natural aspect of human life and can influence outcomes in different contexts, moderate levels of anxiety may be constructive by encouraging responsibility and greater effort (Kahan, 2008; Donnelly, 2009).

Anxiety can manifest through multiple dimensions. Cognitively, it may involve fear of failure, nervousness, or perceptions that tasks are irrelevant. Physically, it appears as rapid heartbeat, sweating, tremors, nausea, or other bodily reactions. Emotionally and behaviorally, it can lead to restlessness, avoidance, reliance on substances, or difficulty focusing. Psychologically, symptoms often include hopelessness, low self-esteem, and frustration (Asadullapoor, Fati, & Gharaee, 2010; Bourne, 2005).

Test anxiety is a specific form of anxiety that has received considerable scholarly attention. Nicaise (1995) described it as a set of physiological and behavioral responses associated with apprehension about examinations. According to his perspective, test-anxious individuals often experience heightened arousal, such as increased heart rate and sweating, coupled with negative thoughts. Similarly, Khosravi and Bigdeli (2008) defined test anxiety as a negative emotional reaction to testing situations, noting its significance as one of the most persistent challenges in education. Although low levels of anxiety can help students remain alert, excessive anxiety tends to impair concentration and diminish academic performance (Coon & Mitterer, 2009). Common symptoms include difficulty sleeping, muscle tension, fatigue, digestive discomfort, and agitation (Porto, 2013), all of which may limit students' academic growth and professional readiness (Ferreira et al., 2014).

Test anxiety can be understood through cognitive-attentional theory, which explains that anxiety disrupts students' attention and working memory, leading to lower academic performance in demanding subjects such as science (Eysenck et al., 2007). Additionally, the transactional model of stress and coping suggests that exam anxiety develops when students perceive the demands of the exam as threatening and feel that they lack adequate coping resources (Lazarus & Folkman, 1984).

Together, these theories provide a solid framework for interpreting students' anxiety levels and performance differences in the current study.

Gender differences in test anxiety have also been explored extensively. A consistent body of research shows that female students generally report higher levels of test anxiety compared with male students (Syokwaa et al., 2014). Beyond gender, test anxiety has been linked to a decline in motivation, reduced benefits from formal education, and lower academic achievement. Scholars have proposed multiple strategies to reduce its effects, such as improving the testing environment, ensuring examiner neutrality, clarifying instructions, and simplifying question structure (Syokwaa et al., 2014; Oluoch et al., 2018). However, even with such interventions, test anxiety remains a significant barrier to learning outcomes and continues to contribute to student underachievement (Oluoch et al., 2018).

Yousefi et al. (2010) emphasized that test anxiety is a major obstacle for secondary school learners, preventing them from realizing their full academic potential. Similar findings were echoed in Ethiopia, where Getachew (2015) highlighted the lack of sufficient research on how test anxiety relates to secondary students' academic performance. Hancock (2001) further observed that students with high levels of test anxiety often achieve poorly and display low motivation, particularly when exposed to highly evaluative assessment environments. His findings suggested that cognitive test anxiety has a lasting negative influence on academic outcomes.

Evidence from the sciences has also confirmed this trend. Oludipe (2009) investigated Physics achievement and concluded that students with lower levels of test anxiety consistently outperformed those with higher levels. Likewise, Putwain (2008) noted that high-stakes examinations, particularly at the secondary level, mark a turning point in students' academic and professional trajectories. According to him, the uncertainty of results, combined with the pressure of frequent assessments, creates a new and significant source of anxiety and stress for learners.

Methodology

The present study followed a descriptive research design, employing a survey method to examine secondary school students' test anxiety in science within private schools of Danyore, district Gilgit.

Population and Sample

Population of the study consisted of all 25 private boys' and girls' schools in the district, with a total enrollment of 921 students (see Table 1).

Table 1

Population in detail

Area	Male	Female	Total
Danyore	353	381	734
Oshkhandas	57	51	108
Jalalabad	32	47	79
Total	442	479	921

A total of 269 students were randomly selected from 06 different schools, the details of which are given below (See Table 2):

Table 2

Sample in detail

Sr. #	Name of Institution	Number of Students		
		Female	Male	Total
1	Vision School and College	13	18	31
2	Global School and College	38	42	80
3	Shaheen School and College	20	11	31
4	Legends School and College	37	30	67
5	Falcon School and College	15	10	25
6	Guider's School and College	20	15	35
	Total	143	126	269

The study used convenience sampling, which may limit the generalizability of the findings beyond the selected private secondary schools in Danyore. Since non-probability sampling can reduce representativeness and introduce selection bias, results should be interpreted as context-specific rather than broadly applicable (Etikan et al.,

2016). This limitation was recognized to ensure careful and transparent interpretation of the study results.

Research Instrument

For data collection, the Test Anxiety Inventory (TAI), originally developed by Spielberger (1980) and later adapted by Stefan Peter and Philip Zabek, was used to measure students' levels of test anxiety in science. The Test Anxiety Inventory (TAI) was reduced from 40 to 29 items to ensure cultural relevance for the target student population. A few statements were removed after expert review and pilot testing because they were linguistically difficult or less culturally appropriate. Such adaptations are recommended in cross-cultural research to improve clarity while maintaining validity and reliability (Beaton et al., 2000). Responses were obtained on a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree.

Items related to worry, negative self-evaluation, and fear of failure were classified as cognitive anxiety; statements reflecting nervousness, panic, and feelings of alarm were grouped under emotional anxiety; while items describing physical reactions such as racing heart, increased blood pressure, and nail biting were categorized as physiological anxiety. This categorization consists of widely accepted multidimensional models of test anxiety (Spielberger, 1980; Zeidner, 1998) and allows for a more meaningful interpretation of students' experiences beyond overall scores.

Data Collection and Analysis

Data were collected directly from male and female students in different schools. Prior to administration, the researcher briefed the school heads, science teachers, and students regarding the purpose and ethical considerations of the study. The instrument was personally distributed and retrieved by the researcher. The data were then analyzed through descriptive statistics and independent samples t-tests using SPSS version 23.0.

Results

Table 3
Summary of Test Anxiety Scores of Overall, Male, and Female Students in Science at the Secondary Level

Sr. #	Statements	Overall		Male		Female	
		Mean	Remarks	Mean	Remarks	Mean	Remarks
1	I feel uneasy while taking the test	2.64	Neutral	2.49	Negative	2.79	Neutral
2	I feel my heart pounding during the test	2.84	Neutral	2.88	Neutral	2.80	Neutral

3	I cannot stop worrying even after an exam is over	2.71	Neutral	2.77	Neutral	2.62	Neutral
4	I lose my concentration on tests while thinking about my grades	2.75	Neutral	2.76	Neutral	2.76	Neutral
5	I get confused during tests	2.63	Neutral	2.76	Neutral	2.55	Neutral
6	I used to forget the facts that I knew while attempting to test	2.80	Neutral	2.53	Neutral	3.02	Neutral
7	I wish I had not gotten into so much trouble during the examination	2.40	Negative	2.53	Neutral	2.24	Negative
8	The more I get prepared for tests, the more I get confused	2.94	Neutral	2.98	Neutral	2.91	Neutral
9	The grades of a course highly influence my performance on tests	2.18	Negative	2.30	Negative	2.06	Negative
10	During exams, I always think about whether I will succeed or not	2.50	Neutral	2.42	Negative	2.55	Neutral
11	I feel nervous even when I am fully prepared for the test	2.72	Neutral	2.91	Neutral	2.58	Neutral
12	The important exams give me so much hard work that it affects my health	2.87	Neutral	2.95	Neutral	2.80	Neutral
13	I see myself as a failure during preparation for an important test	3.37	Neutral	3.21	Neutral	3.56	Positive
14	I feel panic a great deal just before getting a paperback	2.59	Neutral	2.57	Neutral	2.62	Neutral
15	I feel increased blood pressure during an important test	2.87	Neutral	2.81	Neutral	2.92	Neutral
16	The grades of the course highly	2.50	Neutral	2.53	Neutral	2.49	Negative

	influence my performance on the test					
17	A critical test makes me blank	2.86	Neutral	2.84	Neutral	2.88	Neutral
18	Working hard for a test triggers anxiety in me	2.70	Neutral	2.79	Neutral	2.61	Neutral
19	I feel alarmed when I take an important test	2.44	Negative	2.50	Neutral	2.41	Negative
20	I feel shy to write the answer during the test when the teacher stands beside me	2.69	Neutral	2.65	Neutral	2.73	Neutral
21	Before the test, I thought that I would getconfused and forget everything	2.63	Neutral	2.73	Neutral	2.54	Neutral
22	While taking an exam, I always thinkthat I am not doing well	2.84	Neutral	2.81	Neutral	2.86	Neutral
23	When other students complete the test before me, I feel very confused	2.69	Neutral	2.80	Neutral	2.60	Neutral
24	I think that I have been watched by my teacher all the time	2.59	Neutral	2.50	Neutral	2.67	Neutral
25	During the test, I chew the pen or bite my nails out of nervousness	3.07	Neutral	2.93	Neutral	3.18	Neutral
26	I could make myself relaxed by making unintentional moves during exams	2.85	Neutral	2.64	Neutral	3.11	Neutral
27	I think I cannot pass the test even when I am fully ready for it	3.20	Neutral	3.21	Neutral	3.20	Neutral
28	Just before starting the test, I think that I forgot everything	2.70	Neutral	2.75	Neutral	2.67	Neutral

29	Sitting at the front desk makes me more nervous	2.69	Neutral	2.57	Neutral	2.80	Neutral

*SA 4.5 - 5.0, Highly positive, ***A 3.5**- 4.49, Positive, ***N** 2.5 - 3.49, Neutral, ***DA** 1.5 - 2.49, Negative, ***SD** 0.5 - 1.49, Highly negative

Table 3 presents the mean scores for each statement, reflecting the test anxiety levels of all students as well as male and female subgroups at the secondary level in science. The findings reveal that the majority of students (96%) reported a neutral stance toward test anxiety, while only 4% expressed a negative orientation. Interestingly, none of the participants demonstrated a positive perception of test anxiety in science. Moreover, no noticeable difference appeared between male and female students, as both groups exhibited comparable levels of test anxiety.

A neutral level of test anxiety suggests that students experience some emotional tension during science assessments, which may not be debilitating but can still affect concentration and confidence (Putwain and Daly, 2014). Similarly, a negative orientation toward test anxiety reflects discomfort and worry that may interfere with cognitive processes such as attention and memory, thereby potentially reducing academic performance (Eysenck et al., 2007). These findings indicate that even moderate levels of anxiety deserve attention, as they can influence both emotional health and learning outcomes.

Null Hypothesis No: 01

H_{01}**:** There is no significant difference in test anxiety levels in science between male and female students at the secondary level.

Table 6

Summary of the Statistics on Scores of Students' Test Anxiety Level in Science

Gender	N	Mean	S.D.	df	t	Sig. (2-tailed)
Female	143	79.60	16.17	267	0.177	.860
Male	126	79.27	13.52			

Level of significance $= \alpha = 0.05$

The analysis summarized in Table 6 shows that the independent samples t-test yielded t (267) = 0.177, ρ = .860. These results suggest no statistically significant difference between female students (M = 79.60, SD

= 16.17) and male students (M = 79.27, SD = 13.52) in their mean test anxiety scores. Therefore, the null hypothesis (H_{01}) was retained, indicating that both male and female students in private secondary schools exhibit nearly identical levels of science test anxiety.

Null Hypothesis No: 02

H_{02}**:** There is no practically significant difference in test anxiety in science between male and female secondary school students.

Table 7

Calculating effect size on Scores of Students' Test Anxiety Level in Science

Gender	N	Mean	S.D.	M.D.	Pooled S.D.	Cohen's d
Female	143	79.60	16.17	0,33	14.99	0.02
Male	126	79.27	13.52			

Level of significance = α = 0.05

Table 7 shows that no statistically significant gender differences were found (p = 0.860), and the effect size was also negligible (Cohen's d = 0.02). Therefore, the null hypothesis (H_{02}) indicating that male and female students had almost identical levels of test anxiety in science.

Limitations

This study has certain limitations that should be taken into account when interpreting the results. First, the use of convenience sampling limits the generalizability of the results beyond the selected private secondary schools in Danyore. Second, reliance on self-reported data may be influenced by social desirability or response bias. Finally, the cross-sectional design captures students' anxiety at a single point in time and does not allow causal conclusions to be drawn. Future research could address these limitations by using probability sampling, mixed methods, and longitudinal designs.

Discussion and Conclusions

The results indicate that most high school students reported a neutral level of science test anxiety, suggesting that even if anxiety is present, it is generally moderate rather than severe. This may reflect students' familiarity with routine exams and continuous assessment practices, which may help prevent extreme anxiety reactions. However, the lack of positive

anxiety scores suggests that students do not perceive test stress as motivating, but rather as a challenge to manage.

Comparing test anxiety scores by gender revealed no statistically significant differences between male and female students. The negligible effect size further indicates that both groups experience science-related test anxiety equally. This similarity can be attributed to shared academic environments, comparable teaching methods, and uniform assessment systems across the sampled schools, leading to parallel emotional reactions to science exams.

Overall, these findings suggest that science test anxiety is a common but moderate experience among students in the study context and is shaped more by shared educational conditions than by gender. This highlights the importance of tackling test anxiety at the classroom and school level rather than targeting specific groups of students.

Furthermore, statistical analysis showed no significant gender-based differences in test anxiety levels. This outcome supports the findings of Getachew (2015), who similarly concluded that male and female students do not differ significantly in their levels of test anxiety. On the other hand, the result contradicts the findings of Alemu and Feyssa (2020), who reported notable gender differences. Other studies that stand in contrast to the present results include those of Legese (2014), Syokwaa et al. (2014), Ndirangu et al. (2008), and Oluoch et al. (2018), each of which documented gender-related variations in test anxiety. These inconsistencies suggest that gender-related patterns of test anxiety may be shaped more by contextual and cultural factors than by gender alone. Differences in school environments, parental expectations, and societal attitudes toward boys' and girls' academic performance may explain why results vary across settings.

Cultural expectations, testing practices, and parental pressure differ by region and may influence how students experience and report their test anxiety. Additionally, differences in sampling methods, types of schools, and measurement tools can affect results, leading to variations in reported gender differences. These factors highlight the importance of interpreting test anxiety within its specific educational and cultural context.

Science subjects often involve complex problem solving, abstract concepts, and high-stakes assessments, which can trigger greater cognitive and emotional strain compared to other subjects (Hembree, 1988). Addressing science-specific anxiety helps explain students' difficulties concentrating, remembering information, and applying concepts during exams, which distinguishes them from general test anxiety.

Recommendations

Understanding students' science test anxiety can help teachers design supportive learning environments, implement effective stress reduction strategies, and adapt instruction to reduce cognitive and emotional overload (Putwain, 2007). Teacher training programs can integrate this information to equip educators with practical tools to manage test anxiety and improve student engagement and performance.

Based on the study outcomes, it is recommended that science teachers adopt teaching strategies that foster positive attitudes toward learning science at the secondary level. Since science comprises interconnected concepts and sub-concepts, careful instructional planning is necessary to make the subject accessible and less anxiety-inducing. Curriculum developers should also prioritize the selection and organization of content that aligns with learners' developmental needs and interests. Finally, it is suggested that similar research be extended to other disciplines such as physics, chemistry, and mathematics, as well as at higher levels of education, to provide broader insights into the issue of test anxiety.

References

Aleed, Y. (2016). Effects of Education in Developing Countries. *Journal of Construction in Developing Countries*.

Alemu, B. M., & Feyssa, T. (2020). The Relationship between Test Anxiety and Academic Achievement of Grade Ten Students of Shirka Woreda, Oromia Regional State, Ethiopia. *African Educational Research Journal*, *8*(3), 540-550.

Amiri-Majd, M. & Shahmoradi, A. (2008). Effects of cognitive behavioral therapy in reducing anxiety. Behav Sci. 7 (3), 53–64.

Asadullapoor, A. Fati, L., & Gharaee, B. (2010). Metacognitive anxiety and the immediate and delayed judgment of Learning. Journal Psychiatric Clinic Psychol. 16 (4), 412–19.

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine, 25*(24), 3186–3191.

Bourne, E. J. (2005). *The anxiety & phobia workbook* (4th ed.). Oakland, CA: New Harbinger Publications.

Cassady J. C. (2005). The effects of online formative and summative assessment on undergraduate students' achievement and cognitive test anxiety. Journal of Technology Learning and Assessment. 4 (1), 14-21.

Cheraghian, B. Fereydouni, M. BarazPardejani, S. Bavarsad, N. (2008). Test anxiety and its relationship with academic Performance among nursing students. Journal Knowl Health. 3(4), 25–29.

Coon, D. & Mitterer, J. (2009). Psychology of Test Anxiety. Journey of Cengage Learning. 28(3), 48-53.

Donnelly, R. (2009). Embedding interaction within a bend of learner-centric pedagogy and technology. World Journal on Educational Technology. 1 (1), 6-29.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4. https:// doi. org/ 10.11648/j.ajtas.20160501.11

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion, 7*(2), 336–353. https://doi.org/10.1037/1528-3542.7.2.336

Ferreira C, Almondes K, Braga L, Mata A, Lemos C & Maia E. (2009). Evaluation of trait and state anxiety in the first year Students. Cien Saude Colet. 14 (3):973-81.

Getachew, A. (2015). Anxiety, Attitude towards Mathematics, and Mathematics Achievement of Tenth Grade Students At Government

and Private Schools in Kolfe Keranio Sub-City of Addis Ababa. Unpublished M.A. Thesis, Addis Ababa University.

Hancock, D. R. (2001). Effect of test anxiety and evaluative threats on students' achievement and motivation. *The Journal of Educational Research*, 94 (5), 284-290.

Hartley, C. A., & Phelps, E. A. (2012). Anxiety and Decision-Making. *Biological Psychiatry*, *72(*2) 113-118.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58*(1), 47–77. https://doi.org/10.3102/00346543058001047

Kahan, L. M., (2008). The correlation of test anxiety and academic performance of community college students. Capella University. United States. ProQuest LLC journal. https://www. proquest. com/openview/7a28865ed77fd3be2394f0c856594ec9/1

Khosravi M., Bigdeli I. (2008). The relationship between personality factors and test anxiety among university students. *International Journal of Behavioral Sciences*, 2, 13–24.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

Markman U, Balik C, Braunstein-Bercovitz H, Ehrenfeld M. (2010). The effects of nursing students' health beliefs on their willingness to seek treatment for test anxiety. Journal of Nursing Education. 50, 248- 251.

Moadeli Z & Hemsamabedi G. (2005). Survey on the students' exam anxiety in the Fatemeh (P.B.A.H.) College of Nursing and Midwifery. Journal of Strides in Development Medical Education. 1 (2), 65-72.

Ndirangu, G. W., Muola, J. M., Kithuka, M. R., & Nassiuma, D. K. (2009). An investigation of the relationship between Test anxiety and academic performance in secondary schools in Nyeri District, Kenya. *Global Journal of Educational Research*, *8*(1-2).

Nicaise, M. (1995). Treating test anxiety: A review of three approaches. Teacher Educational Practices. 22 (7) 65-81.

Oludipe, B. (2009). Influence of test anxiety on performance levels on numerical tasks of secondary school physics students: Academic Leadership: Online Journal, 7(4).

Oluoch, J. N., Aloka, J. O., and Odongo, B. C. (2018). Test anxiety beliefs as a predictor of students' achievement in Chemistry in public secondary schools in Kenya. International Journal of Psychology and Behavioral Sciences, 8(4): 70-76.

Peleg, O. (2009). Test anxiety, academic achievement, and self-esteem among Arab adolescents with and without learning disabilities. *Learning Disability Quarterly, 32* (1), 11-20.

Porto, A. (2013). Definitions and classification of NANDA nursing diagnoses. NANDA International. 68 (4), 603-609.

Putwain, D. W. (2007). Test anxiety in UK schoolchildren: Prevalence and demographic patterns. *British Journal of Educational Psychology, 77*(3), 579–593. https://doi.org/10.1348/000709906X161704

Putwain, D. W. (2008). Test anxiety and GCSE performance: The effect of gender and socio-economic background.

Putwain, D. W., & Daly, A. L. (2014). Test anxiety prevalence and gender differences in a sample of English secondary school students. *Educational Studies, 40*(5), 554–570.

Spielberger, C. D. (1980). Preliminary professional manual for the Test Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Syokwaa, K. A., Aloka, J. O., and Ndunge, N. F. (2014). The relationship between anxiety levels and academic Achievement among students in selected secondary schools in Lang'ata District, Kenya. Journal of Educational and Social Research, 4(3): 403-413.

Yousefi, F. Mansor, M. B., Juhari, R. B., Redzuan, M., Talib, M. A., Kumar, V., and Naderi, H. (2009). Memory as Mediator between Test Anxiety and Academic Achievement in High School Students. European Journal of Scientific Research, 35 (2), 274-280.

Zahrakar, K., (2008). Stress Consultant. Tehran: Bal University Publication, 1st. (Chapter 1).

Zeidner, M. (1998). *Test anxiety: The state of the art*. Plenum Press.

Zoller, U., & Ben-Chaim, D. (1990). Gender differences in examination-type preferences, test anxiety, and academic Achievements in college science education case study. Science Education, 74, 597-608.